

AN UNUSUAL TEMPORALLY ISOLATED POPULATION OF *NEOLUCIA AGRICOLA* WATERHOUSE & TURNER IN WESTERN AUSTRALIA (LEPIDOPTERA: LYCAENIDAE)

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Abstract

A temporally isolated population of *Neolucia agricola occidens* Waterhouse & Lyell referred to as *N. a. occidens* 'Julimar' is recorded from Western Australia. The 'Julimar' population is distinguished from others by the smaller size, generally darker colour and flight period, March-April. The only known host is the immature flower buds of *Daviesia angulata* (Fabaceae).

Introduction

Neolucia agricola Waterhouse & Turner is a small brown lycaenid which occurs from central Queensland to South Australia, south-west Western Australia and Tasmania, with subspecies *N. a. occidens* Waterhouse & Lyell occurring in the western part of its range. The adults have been recorded previously from September to February, with some southern coastal and higher altitude populations flying in January-February. For other populations the predominant flight period is September to November (Common and Waterhouse 1981).

Neolucia agricola occidens form 'Julimar' (Figs 1-4)

Material examined. Western Australia: 78 ♂♂, 20 ♀♀, Julimar Conservation Park, near Perth, 18 & 19.iv.1993, 14.iv.1994, 29 & 30.iii.1995, 4.iv.1995, A.J. Graham, H.H. Bollam, M.R. Williams, R.W. Hay and P. Hutchinson.

Description. Male (Figs 1, 2) consistently smaller than typical *N. a. occidens*; size 18-20 mm. Above dark brown with a bronze iridescence, terminal fringes distinctly chequered dark brown and white. Beneath light to mid-brown, apex and terminal areas grey-brown; forewing with a fine dark brown terminal line, subterminal dark brown marks between veins M₂ and M₃, M₃ and CuA₁, CuA₁ and CuA₂ sometimes obscure, an irregular series of five brown postmedian marks between veins R₅ and M₁, M₁ and M₂, M₂ and M₃, M₃ and CuA₁, CuA₁ and CuA₂, edged white, plus two brown bars edged white in cell; hindwing with a fine dark brown terminal line, irregular brown and white patches in basal and median areas and two distinct brown-black, inverted V-shaped markings, edged above cupreous, between veins M₃ and CuA₂; occasional similar but obscure subterminal dark brown, inverted V-shaped markings above vein M₃. Similar to *N. a. occidens* (Figs 5-8) but darker, with slightly increased greyness, especially on underside.

Female (Figs 3, 4) similar to male but slightly larger; size 19-21 mm. Wings rounder and paler above; markings on underside more distinct.

Etymology. This population is named after Julimar, the name applied to WA State Forest No. 61, where it was discovered by A. J. Graham and H. H. Bollam on 18 April 1993. The meaning of the name Julimar is not evident but was first used by G.N. Rowe in 1867, while surveying 'Jullimurring Brook' (WA Department of Land Administration, *pers. comm.*).

Distribution and Flight Period

Recorded only from the Julimar Conservation Park, approximately 85 km north of Perth, Western Australia, where it flies in March and April. This locality is approximately 60 km from the nearest known populations of *N. a. occidentis* at Warwick and Burns Beach. Other Western Australian populations fly from October to January.

Life History

Food plant: *Daviesia angulata* Benth. (Fabaceae).

Egg: Not yet observed.

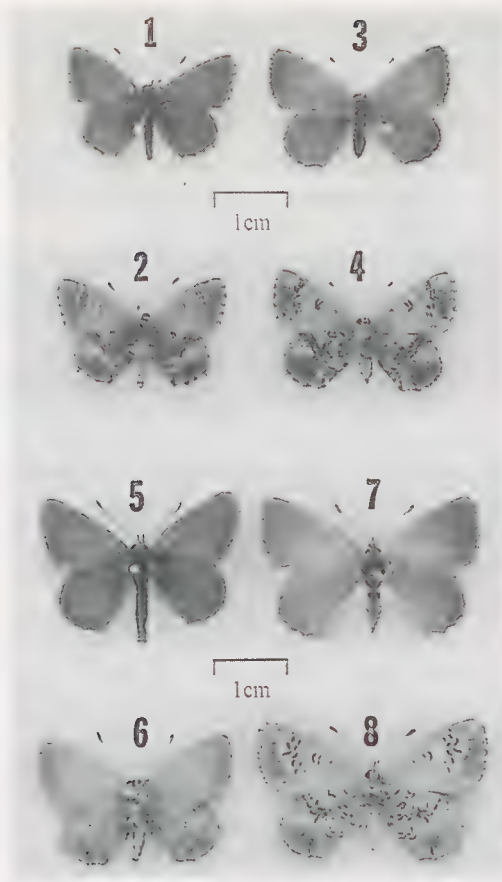
Final instar larva: Differs from Fisher's (1978) description of the larva of *N. a. agricola* which, however, are known to be variable in colour (Fisher 1995). Smooth; basic colour mid-green; broad dark green dorsal stripe and lateral stripes; thin yellow line between green dorsal and lateral stripes; slightly thinner pale yellow lateral stripe on each side just above legs; two brilliant red eye-like spots just behind the head. Size up to 8 mm x 3 mm x 2 mm. No ants were observed in attendance.

Pupa: Dark speckled grey-brown with scattered darker brown markings; thin dark brown dorsal line over thorax and abdomen; head with crescent shaped dark brown line over each eye. Length approximately 6 mm. Pupation takes place in leaf litter and not on foodplant; it lasts approximately 10 days. First known emergence 29 March.

Discussion

Larvae feed on the immature flower buds of the hostplant. Normally only a single immature bud from each inflorescence is eaten before the larva moves onto a new inflorescence. This habit makes it very difficult to locate larvae as large scale damage to the plant is avoided. Larger buds and flowers are not eaten. Of the 18 species of *Daviesia* Smith recorded from the Perth Region and south-west Western Australia (Marchant *et al.* 1987), only *D. angulata* (and occasionally *D. preissei* Meissner) flowers in the Autumn. The flowering period for *D. angulata* at Julimar is mid-March to end of April.

Species of other reported larval foodplants (Common and Waterhouse 1981), in genera *Aotus* Smith, *Bossiaea* Vent., *Dillwynia* Smith, *Eutaxia* R. Br. and *Pultaenea* Smith, do occur in the Perth Region and south-west Western



Figs 1-8. *Neolucia agricola occidens*. (1-4) Form 'Julimar' (April): (1, 2) male upper and undersides; (3, 4) female upper and undersides. (5-8) Normal form (October): (5, 6) male upper and undersides, Leeming, WA; (7, 8) female upper and undersides, Jandakot, WA.

Australia but flowering periods are generally from May to February (Marchant *et al.* 1987). Thus *Daviesia angulata* is likely to be the only foodplant capable of supporting an autumn brood for *N. agricola*.

Further collecting in and around Julimar is being undertaken in order to more clearly establish the distribution and status of this population and determine how its distribution relates to other populations of *N. a. occidens*.

Acknowledgments

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